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Particles in Code Switching Of a Japanese-Chinese Bilingual Infant

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Abstract

Most previous studies on code switching of bilingual first language acquisition are concerned with Indo-European languages, which have few particles. However, my database of a Japanese-Chinese bilingual infant clearly shows that some type of particles play a very important role in code switching. Through a dichotomy of grammatical particles and pragmatic ones, this paper concludes that pragmatic particles are involved in code switching much more frequently than grammatical ones. Thus, likewise it follows that code switching is less likely to occur within a proposition.

Keywords: Bilingual First Language Acquisition; Code Switching; Contentive-Functor Co-occurrence; Grammatical/Pragmatic Particle.

1. Introduction

With the rapid development of globalization, bilingualism has become a world-wide phenomenon, and a considerable number of studies have been conducted on it over the past decade. Compared with studies on adult bilingualism, however, childhood bilingual research is still in its infancy.

Among the studies of childhood bilingualism, 'Bilingual First Language Acquisition' (BFLA), is usually adopted by researchers (Meisel, 1990; de Houwer, 1990; Genesee, 2001), to refer to the simultaneous acquisition of a bilingual child's two first languages. The research has focused on an intersection part between bilingualism and child language acquisition, as illustrated by Figure 1.

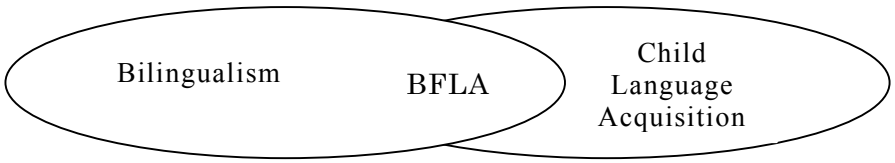

Figure 1. Bilingual First Language Acquisition

One of the most important features of bilingualism is Code switching (CS hereafter). It is generally defined as the alternate use of two languages within the same discourse ('inter-sentential CS') or within a single utterance ('intra-sentential CS'). A third type of code switching, which is often called 'tag-switching', refers to items like tags or fillers, serving as an emblem of the bilingual character. In this paper, I will limit the discussion to intra-sentential code switching.

2. Research Purpose

Among the previous case studies on bilingual first language acquisition, functional words are often reported to occur frequently in bilingual children's CS utterances (Genesee et al., 1995; Deuchar & Quay, 2000; Cantone, 2007). However, most literature on CS of BFLA is concerned with Indo-European

languages, so that little is known about simultaneous acquisition of typologically different languages.

Hence, the present work is an attempt to study CS of a Japanese-Chinese bilingual infant, whose two languages are typologically quite different and have not been investigated in previous studies on CS of BFLA. The focus of the present study is functional words, especially particles that co-occur with content words in the Japanese-Chinese CS utterances. The purpose of this study is to clarify the correlation between the function of the particles and their code switchability, i.e. the possibility to be involved in intra-sentential code switching.

This paper will first discuss the methodology of the experiment. In the discussion part, it will propose a dichotomy of particles into two types, i.e. 'grammatical' and 'pragmatic'. This approach leads to the prediction that CS is more likely to contain pragmatic particles, due to their multiple pragmatic functions. Furthermore, this prediction is validated through statistical analysis. Finally, an approach which combines pragmatic and morpho-syntactic analysis is proposed to provide a more comprehensive understanding on the role of particles in Japanese-Chinese code switching.

3. Method

This part addresses the methodological issues of the present study, including: i)the background of the research subject, as well as the bilingual input situation; ii) the method of data collection and transcription; and iii) the units defined for the statistical analyses.

3.1 Subject

The research subject of the present study is a three-year-old infant 'XIN', who came to Japan with her Chinese parents at the age of 0;11. At home, she was addressed by her parents in Chinese. Meanwhile, she attended a Japanese nursery school from the age of 1;4, and spent approximately 40 hours per week in a monolingual Japanese environment. Therefore, from the earlier stage of her language acquisition, the infant had been exposed to the bilingual environment, and CS utterances were regularly observed.

3.2 Data Collection and Transcription

The spontaneous conversations that took place mainly between the mother (i.e., the researcher) and the child at their home were recorded for the time span of twelve months from XIN's age of 2;1 to 3;0, accumulating up to 129 hours of data. In addition, diaries were kept by the researcher as a secondary source of data, in case any new types of CS utterances were produced by the subject outside the recording periods.

Out of all the recordings, a total segmental set of 12 hours (i.e., one hour per month in average) was selected. CHILDES (Child Language Data Exchange System) (MacWhinney, 2000) was used for the transcription of the data and hence a database was created.

3.3 Analysis

Within the database, this study mainly examined two patterns of CS utterances, which contain the co-occurrence of a content item ('contentive') and a functional item ('functor'), especially particles. The two patterns are

represented in example (1) Chn.C+Jpn.F (i.e., Chinese contentive plus Japanese functor); and, example (2) Jpn.C+Chn.F (i.e., Japanese contentive plus Chinese functor)[1], classified as Pattern (a) and Pattern (b), respectively.

(1) zhè-gè -*wa*? (07111101)[2]
this-Classifier PTL-Topic – Pattern (a)
'This one?'

(2) *kore* -ne? (07081300)
this PTL-Question – Pattern (b)
'What about this?'

To quantify the prevalence of these two patterns, type and token analyses were carried out. The number of type words represent functors co-occurrence with different contentives of the other language, while the number of token words show all co-occurrences with contentives. Note that the diary data only contribute to the counting of type words for qualitative claims, while token word counts come from only the recordings.[3]

4. Results

Figure 2 shows that during the recording period of 12 months, the occurrence of CS utterances were high in relationship to total utterances (30.3%), and furthermore, there was a gradual increase in the ratio of CS utterances as the subject's age advanced. Figure 3 shows that within all the intra-sentential CS utterances, 424 tokens (40.6% of 1044 total utterances in the database) showed the co-occurrence patterns of either (Chn.C+Jpn.F) or (Jpn.C+Chn.F).

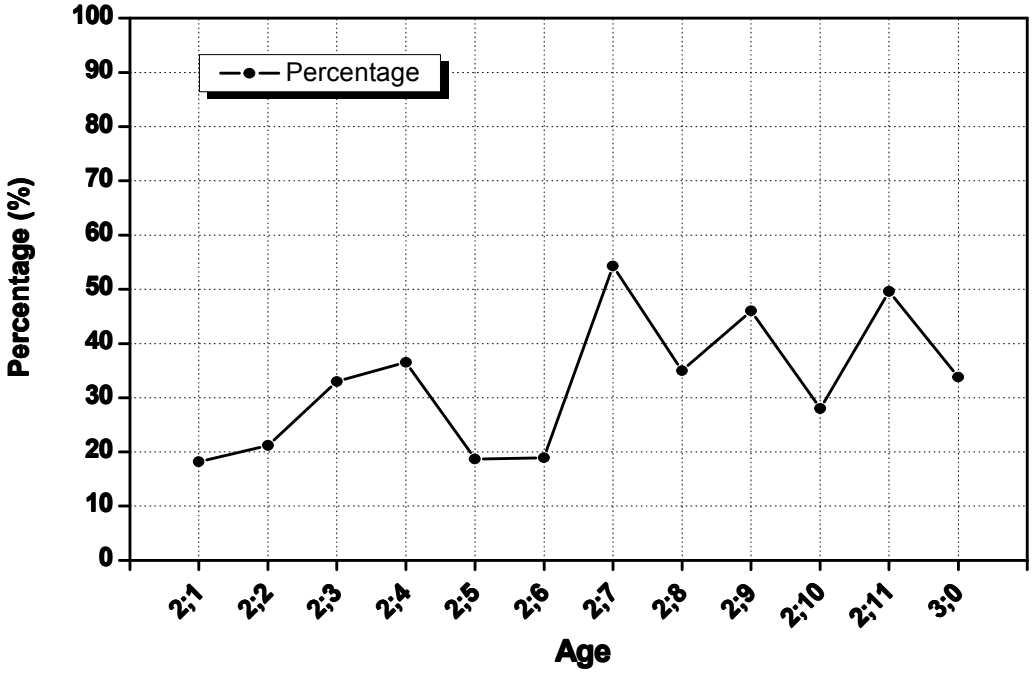

Figure 2. Percentage and Tendency of CS Utterance with Age(4)

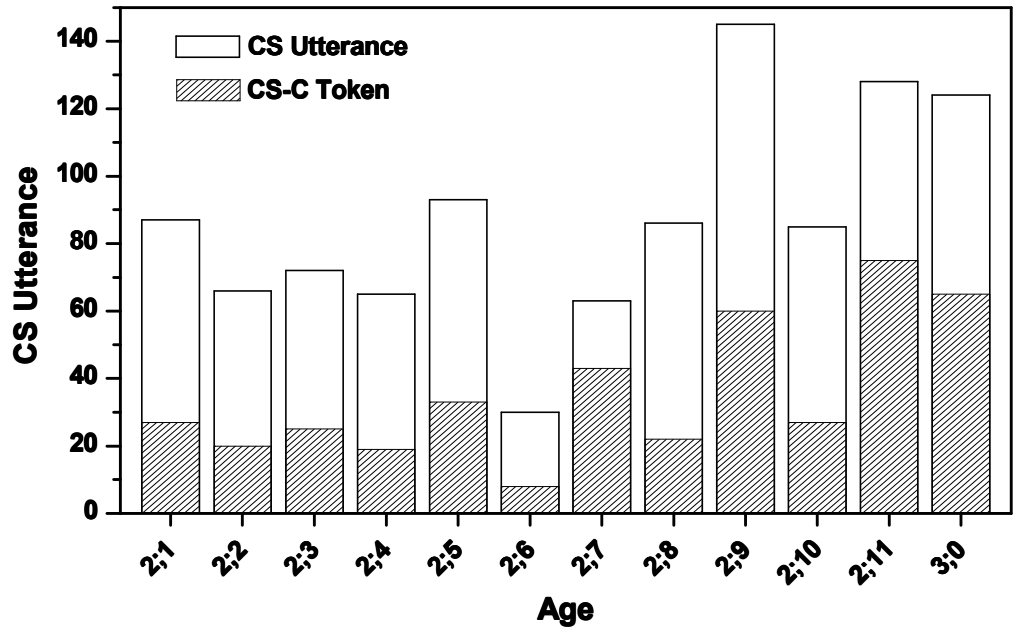

Figure 3. Ratio of CS Contentive-Functor Co-occurrence (CS-C) / CS Utterance

The results of high ratios of CS occurrence and large quantities of function words CS, coincide with the previous studies on CS utterances during the bilingual infants' early stage of language acquisition (Genesee et al., 1995; Deuchar & Quay, 2000; Cantone, 2007).

Table 1 and 2 summarize the patterns of both (Chn.C+Jpn.F) and (Jpn.C+Chn.F). In order to indicate the features of the functors involved, this study examined both particles and non-particle-functors in the co-occurrence patterns.

Table 1. Percentage of Particles in (Chn.C+Jpn.F)

Functors	Token	Percentage	Type	Percentage
Particles	285	83.8%	208	73.8%
Non-particles *	55	16.2%	74	26.2%
Total	340	100.0%	282	100.0%

* Japanese non-particle functors include copulas, auxiliaries, negators, and light verbs.

Table 2. Percentage of Particles in (Jpn.C+Chn.F)

Functors	Token	Percentage	Type	Percentage
Particles	68	81.0%	29	67.4%
Non-particles *	16	19.0%	14	32.6%
Total	84	100.0%	43	100.0%

* Chinese non-particle functors include auxiliaries, negators, and classifiers.

In both (Chn.C+Jpn.F) and (Jpn.C+Chn.F), CS involving particles occured more frequently than CS with non-particle functors, 73.8% and 67.4%, respectively. This high correlation of particles and code switching has been rarely reported in previous studies. In the next section, this paper discusses the functions of different groups of particles.

5. Discussion

In this part, the Japanese particles are first divided into two groups, i.e. grammatical and pragmatic, followed by a type and token analysis for Pattern (a):(Chn.C+Jpn.F), with some examples. Likewise, the same kind of analysis is conducted on Chinese particles in Pattern (b): (Jpn.C+Chn.F). A functional analysis on those particles leads to the assumption that pragmatic particles play a more important role than grammatical ones in CS performance, because of their non-truth conditional meaning. Such an assumption is validated by the statistical analysis followed, which shows that pragmatic particles are involved much more frequently than the grammatical group in both Pattern (a) and (b) in Japanese and Chinese code switching.

5.1 Japanese Particles in CS

Japanese is well-known for its richness of particles. According to Kuno (1973), there are some seventy postpositional particles in Japanese. All particles are structurally bound, but have different functions. Kuno (1973: 5) manifested that Japanese particles are used “not only to represent case relationships, or to represent the functions that are carried in English by prepositions and conjunctions, but also after sentence-final verbs to represent

the speaker's attitude toward the content of the sentences".

Cook (2006) discussed some differences between 'case particles' and 'sentence particles', pointing out that case particles indicate grammatical relations, while sentence particles occur in face-to-face interaction and index various speech acts.

Ever since Tokieda (1951) advanced the idea that the fundamental function of sentence-final particles is 'to form an interpersonal relationship', studies of particles have led to the expansion of analysis from the formal framework to the interpersonal expressive domain. Many scholars have analyzed the pragmatic functions of sentence particles, or 'interactional particles', according to Maynard (1999).

Based on these previous works, this paper classified Japanese particles into two categories: grammatical and pragmatic particles. The former relate a noun phrase with a predicate and are truth-conditional. The latter are discourse markers and modify a proposition.

i) Grammatical Particles: case markers, adverbial particles;
ii) Pragmatic Particles: topic markers(5), conjunctions, sentence final/internal particles.

Table 3-1 and 3-2 are lists of these particles and their frequencies.

Utterances in examples (3) – (5) show CS utterances where Japanese grammatical particles co-occur with Chinese contentives. The particles '-*no*' and '-*to*' are case markers, and '-*mo*' is an adverbial particle. All indicate a relation between two constituents such as a noun phrase and a predicate.

Table 3-1. A Type and Token Analysis on CS (Chn.C + Jpn.PTL)

Grammatical Particles (PTL)		Token	Type
Case PTL (6)	-to (COMITATIVE)	51	27
	-no (GENITIVE; NOMINATIVE)	3	3
	-ni (LOCATIVE)	1	2
	-de (LOCATIVE)	1	1
	-ga (NOMINATIVE)	1	1
	-kara (ABLATIVE)	1	1
Adverbial PTL (2)	-mo (also)	21	12
	-dake (only)	0	1
SUM (8)		79	48

(3) nuǎnqì *-no* hòubiān *kakure-te* *-ne*. (08042800)
heater PTL-GEN behind hide PTL
'(I will) hide (it) behind the heater, all right?'

(4) lǜsè *-to* hóngsè. (08033101)
green PTL-COM red
'green and red.'

(5) gàigai *-mo* yào. (09-DEC-2007)
lid PTL-also want
'(I) also want the lid.'

Table 3-2. A Type and Token Analysis on CS (Chn.C + Jpn.PTL)

Pragmatic Particles (PTL)		Token	Type
Topic PTL (2)	-wa (TOPIC)	98	41
	-tte (TOPIC)	2	2
Conjunctive PTL (2)	-kara (because)	9	14
	-de (COORDINATIVE)	1	3
Sentence Final PTL (9)	-ne (ILLOCUTION)	37	40
	-dayo(ne) (ILLOCUTION)	23	28
	-yo (ILLOCUTION)	4	5
	-ka (SOLILOQUY)	4	4
	-ja nai↑/ jan (TAG QUESTION)	4	4
	-nano (QUESTION)	3	4
	-kana (SELF-SPECULATION)	1	2
	-mon (emphasis)	1	1
Interjectory PTL (2)	-ne (interj.)	18	11
(Sentence middle)	-sa (interj.)	1	1
SUM (15)		206	160

The particles in the following examples are pragmatic. The sentence final particles express illocutionary forces: '-*ne*' in example (6) indicates the force of agreement seeking, and '-*yo*' in example (7) the force of strong assertion. The conjunction '-*kara*' in example (8) expresses a reason. Each of them is attached to a proposition rather than to a noun phrase, and represents a

discoursal relation between propositions or expresses pragmatic functions.

(6) kàn-bú-jiàn rén -le *-ne*. (07061700)
look-Neg.-see people PTL-current state PTL-Illocution
'Nobody is (there), right?'

(7) *zenbu* huíjiā -le *-yo*! (08021400)
all go home PTL-past PTL-Illocution
'All went home, I am telling you.'

(8) Bǎobao kàn shū -ne *-kara* *-sa.* (30-APR-2008)
baby read book PTL-Prog. PTL-because PTL-Illocution
'Because I am reading, you know.'

Both types of particles are compatible with CS, but Table 3 clearly shows that pragmatic particles are much more likely to be involved in CS.

5.2 Chinese Particles in CS

Likewise, Table 4 is a classification of Chinese particles evident in the present data into two categories, mainly based on the functional analysis of Chinese particles by Li and Thompson (1981).

Some examples of this pattern involving Chinese particles are as follows.

(9) Bǎobao xǐhuān *pinku* -de *iro.* (14-JAN-2008)
baby like pink PTL-GEN color
'I like the color of pink.'

(10) *kore* *Hoikuen* *-no* (*o-isu*) -ba? (08011900)
this nursery school PTL-GEN chair PTL-solicit agreement
'This (chair on the picture) is from the nursery school, right?'

Table 4. A Type and Token Analysis on CS (Jpn.C + Chn.PTL)

Grammatical Particles		Token	Type
Case PTL (1)	-de (GENITIVE; NOMINATIVE)	24	10
Pragmatic Particles		Token	Type
Sentence Final PTL (4)	-ba (solicit agreement/imperative)	15	7
	-le / -la (currently relevant state)	13	3
	-ne (question)	12	7
	-ne (response to expectation)	4	2
SUM (5)		44	19

Though case marker '-de' frequently co-occurs with Japanese contentives in CS, it is the only grammatical particle compatible with CS utterances(6). Pragmatic particles, on the other hand, correspond better with code switching.

5.3 Pragmatic Particle vs. Grammatical Particle

Let me summarize the basic characteristics of the two types of particles discussed so far. Morphologically, both the pragmatic and grammatical particles are bound morphemes that cannot stand apart independently. They must be attached to some complement. One difference between them is that a

grammatical particle is supposed to be attached to a noun phrase, while the pragmatic one, for the most part, is attached to a clause.

Another difference between the two categories lies in their functions. The grammatical particles, typically, case markers, usually do not have much meaning by themselves (except for adverbials), but they indicate a pure syntactic relationship between an argument and its predicate. The pragmatic particles, on the other hand, are discourse-oriented, and have scope over a proposition. Some of them mark a topic of the utterance, and others have illocutionary force. They tend to be more independent, even like some tags or interjections.

Therefore, it may be speculated that the pragmatic particles are more likely to occur within CS utterances, due to their independence from a proposition, whereas grammatical particles have less code-switchability.

5.4 Statistical Validity

In order to prove the speculation above, this study conducted some statistical work to compare the ratio of occurrence for the two groups of particles in both (Chn.C+Jpn.PTL) and (Jpn.C+Chn.PTL), as shown in Table 5 and 6.

Table 5. Percentage of Pragmatic Particle in (Chn.C + Jpn.PTL)

Particles	Number	Token	Percentage	Type	Percentage
Grammatical	8	79	27.7%	48	23.1%
Pragmatic	15	206	72.3%	160	76.9%
Total	23	285	100.0%	208	100.0%

Table 6. Percentage of Pragmatic Particle in (Jpn.C + Chn.PTL)

Particles	Number	Token	Percentage	Type	Percentage
Grammatical	1	24	35.3%	10	34.5%
Pragmatic	4	44	64.7%	19	65.5%
Total	5	68	100.0%	29	100.0%

The highlighted numbers in Table 5 and 6, i.e. 76.9% for Japanese pragmatic particles and 65.5% for Chinese ones, manifest that the pragmatic particles do occur much more frequently witinin CS than the grammatical ones in either (Chn.C+Jpn.PTL) or (Jpn.C+Chn.PTL). Hence, the assumption of a higher code-switchability of pragmatic particles is validated.

The function of CS involving those pragmatic particles, in fact, has been analyzed by Nishimura (1997), who approached CS from both a functional and syntactic perspective in her case study of Japanese-English code switching. She provided a detailed analysis on the various functions of code switching in her target bilingual community. According to Nishimura (1997: 140), the function for CS involving pragmatic particles is mostly a kind of "involvement intensification", i.e. the speaker's "emotional attachment to anything – themselves, interlocutors, objects, places, etc". I will leave the topic of a functional approach to Japanese-Chinese code switching for future research.

6. Conclusion

The present case study of a Japanese-Chinese bilingual infant has mainly

examined the particles involved in intra-sentential code switching utterances, since particles are hardly investigated in detail in previous studies of Indo-European languages. Large quantities of code switching involving particles have been found in my data. How could the occurrence of such a great number of code switching utterances containing particles be interpreted effectively?

Through a dichotomy of particles into grammatical and pragmatic ones, this study concludes that pragmatic particles occur within contentive-functor co-occurrence code switching much more frequently than grammatical ones. This happens because the former are independent from a proposition, while the latter are truth-conditional and dependent on a proposition, and have less code-switchability. In other words, code switching is less likely to occur within a proposition.

Hence, this study maintains that a pragmatic functional approach should be combined with a morpho-syntactic analysis, to provide a more comprehensive understanding of the roles of particles involved in code switching.

Notes:

1. Since most of the particles occurred in the present database, either Japanese or Chinese ones, are postpositional particles, word order is not considered in the present study.
2. The series of number that appears after every example, corresponds to the name of the recording file, indicating the date for the recording, e.g. (07111101) means November 11th, 2007; and the last two number '01' refers to the second recording file ('00' at the end means the first) on that day.

3. This is also why most discussion in the present paper are based on type data, even though the final ratios of both type and token more or less show the same result.

4. Note that the period between 2;5 and 2;6 in figure 2 shows a lower ratio of code switching occurrence due to a short stay of the family in China.

5. Takagi (2008) suggested that the topic marker '*-wa*', together with the conjunctions and sentence final particles should be categorized into content words, since they are conceptually activated in the mental lexicon according to Myers-Scotton's (1993; 2002) 4-Morpheme Model. Here we consider them as functional words, only with pragmatic functions.

6. According to Myers-Scotton's (2002; 2009) 4-Morpheme Model, the Chinese particle '-de', as well as the Japanese particle '-*no*', '-*to*', should be sub-classified as a kind of bridge system morphemes, which are compatible with code switching. The present classification of particles into grammatical and pragmatic group, is only a rough categorization. For future studies, the particles need to be further classified. Meanwhile, statistical analyses on the particles that occurred not only within code switching utterances, but also in non-code-switching utterances may be necessary, as well.

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